EnviroSense

# Fact Sheet: Pollution Prevention: Strategies for Demolition Waste

Center For Hazardous Materials Research (CHMR)

The pollution prevention practices described here have worked for other demolition firms.

## What is pollution prevention?

Pollution prevention is the reduction or elimination of discharges or emissions to the environment. This includes all pollution: hazardous and non-hazardous, regulated and unregulated, across all media, and from all sources. Pollution prevention can be accomplished by reducing the generation of wastes at their source (source reduction) or by using, reusing or reclaiming wastes once they are generated (environmentally sound recycling).

Each of the pollution prevention practices described in this fact sheet is an extension of the simple but powerful idea that it makes far more sense to eliminate the generation of waste than to develop complex and costly treatment schemes once it has been generated.

## How can I minimize the hazards of demolition materials?

### Hazard Inventory

Before demolition begins, determine if any hazardous materials are present Problems can develop unexpectedly. They may be hidden, for instance, underground. Whenever possible, try to identify problem areas before demolition begins.

- Conduct an inspection and list materials that may be hazardous - Asbestos-containing materials.
    - Lead pipes and lead paint wastes.
    - Drums or other containers of unknown materials.
- Limit demolition to qualified personnel
- Ensure that rubble (non-recyclable demolition waste material) is disposed of in accordance with all local, state and federal regulations.

Demolition contractors can be held liable for hazardous materials that are spilled, ignited, ingested, improperly disposed of, or released. It's in the demolition contractor's best interest to contact a waste disposal specialist when drums or containers of unknown substances or materials are encountered on a site.

## What kinds of waste does demolition produce?

Building maintenance, repair, and demolition generate waste that can be valuable for use in new construction, as material that can be recycled, or as raw material that can be beneficially used at another location.

### Typical Wastes

Wastes typically generated by demolition activities include:

- Aluminum
- Tile
- Iron and steel
- Wood
- Plastic
- Roofing materials
- Concrete
- Asphalt
- Brick and block
- Insulation
- Glass
- Lead pipes.

## Will pollution prevention work for demolition firms?

Demolition projects present unique difficulties. Managers are unlikely to have much advance information about the materials they will be working with. Each site will present unique opportunities for materials reuse. Each site will also pose unique hazards.

In order to take advantage of reuse opportunities and minimize hazards, each site should be carefully evaluated before demolition begins.

### Material Reuse

Reuse of materials that normally would be considered rubble can not only reduce disposal costs at the demolition site, but also reduce materials costs at the construction site where they are used. Inspect the site before demolition begins and list materials that should be saved. Then select demolition methods and procedures that will promote reuse. Demolition items that can be reused include:

- Bricks and blocks
- Doors and windows
- Plumbing fixtures and pipes
- Electric fixtures and wiring.

### Recycling

Recycling is the use, reuse or reclamation of a waste after it has been generated. Examples of opportunities for recycling demolition waste include:

- Creating mulch or chips from wood, or using wood as a fuel.

- Recycling all glass and plastic.
- Rejuvenating old asphalt. A new asphalt mixture can contain up to 30 percent of asphalt milled from road construction.
- Rejuvenating existing asphalt by heating pavement, injectingpetrol eum distillates, grinding, mixing and rerolling in a single-step process.
- Crushing old concrete and using it as an aggregate or a base material.
- Separating reinforcement steel with magnets for sale as scrap metal.
- Removing and recycling all metal before demolition, including aluminum siding, steel pipes, copper pipes, and cast iron bath tubs.
- Investigating new processes such as heating asbestos and other materials in a high temperature tunnel oven and creating glass like material for use in asphalt mixes or as fill.
- Insulation materials
- Wall & pipe insulation
- Floor sheet backing & binders
- Patching compounds.

## What special precautions should be taken with asbestos?

Asbestos-containing wastes present unique hazards. Asbestos is one of the most hazardous materials encountered during demolition activities. Some asbestos materials can break into fibers which float in the air. These minute fibers are not visible to the unaided eye. They pass through the filters of normal vacuum cleaners and reenter the air. When fibers present in the air are inhaled, they represent a health risk. Asbestos has been used in a wide variety of products, including household and building materials such as:

- Friable ceilings
- Floor tiles
- Roofing materials
- Textured paints.

Recognizing asbestos-containing materials during demolition can be difficult and may require the services of a contractor trained and experienced in asbestos removal projects. In general, presence of asbestos containing materials may be suspected if the following conditions are observed:

- Friable, cementitious sprayed-on or troweled material (acoustical plaster).
- Perforated, non-friable wallboard with friable sprayed-on material behind.
- Friable, fluffy sprayed-on material (fireproofing); or friable fireproofing material on beam with pipe insulation below.

In addition, there are certain areas where asbestos is likely to be present. For example, boilers and pipes are often insulated with asbestos materials.

Boiler room walls and ceilings may also be covered with asbestos containing material. Asbestos may be present in the backing of some vinyl sheet flooring. Fibers can be released if the backing on the sheet flooring is sanded.

Demolition or renovation operations in facilities which contain friable asbestos above certain

quantifies are regulated under the National Emission Standards for Hazardous Air Pollutants (NESHAP) regulations (40 CFR 61). These regulations specify asbestos ession limits and control procedures.

Asbestos is also regulated by local authorities, such as the local county health department. Local regulations are generally more restrictive than the federal regulations. They may include:

- Licensing of asbestos removal contractors
- Permitting of removal projects
- Air monitoring requirements
- Inspection requirements
- Restrictions such as prohibiting the use of glovebags
- Enclosure requirements.

A manual on asbestos control, Guidance for Controlling Asbestos-Containing Materials in Buildings, commonly referred to as the "Purple Book", is available from the EPA. In general, it is advisable to use contractors specifically experienced, trained, and licensed for asbestos demolition and removal operations.

This fact sheet should only be considered as an introduction to pollution prevention. Since ..... developed, it cannot include every existing pollution prevention practice. of a specific practice should not be considered an unqualified endorsement, and not every practice is suitable for every facility.

## Who's going to do it?

Pollution prevention requires a new attitude about pollution control. Traditional thinking places all the responsibility on a few environmental experts in charge of treatment. The new focus makes pollution prevention everyone's responsibility. Preventing pollution may be a new role for production-oriented managers and workers, but their cooperation is crucial. It will be the workers themselves who must make pollution prevention succeed in the workplace.

Management commitment and employee participation are vital to a successful pollution prevention program. Management can demonstrate its commitment to pollution prevention and encourage employee participation by:

- Training employees in pollution prevention techniques
- Encouraging employee suggestions
- Providing incentives for employee participation
- Providing resources necessary to get the job done.

## Additional Publications

1. Hazardous Waste Minimization Manual for Small Quantity Generators, Second Edition, Center for Hazardous Materials Research, 320 William Pitt Way, Pittsburgh, PA 15238, 1989. (Call 800-334-CHMR)

2. Guidance for Controlling Asbestos-Containing Materials in Buildings, EPA 560/5-85-024.

(Available from NTIS, Cat] 703-4874600)

## Further Pollution Prevention, Recycling & Asbestos Information

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The Center for Hazardous Materials Research (CHMR) is a non-profit subsidiary of the University of Pittsburgh Trust, and is a non-regulatory organization. Its mission is to assist in developing and implementing practical solutions to the technical, environmental, economic, and health problems associated with hazardous and solid waste. For more information on this and other CHMR publications call (800) 334-CHMR.

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